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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,456

01/03/2006

William S Oakley

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EXAMINER

ORTIZ CRIADO, JORGE L

ART UNIT

PAPER NUMBER

2627

MAIL DATE

DELIVERY MODE

11/26/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/563,456	Applicant(s) OAKLEY, WILLIAM S	
	Examiner JORGE L. ORTIZ CRIADO	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 09/12/2008 have been fully considered but they are not persuasive.

Applicant argues that the combination of Crewe and Nickel would be inoperative.

The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Nickel teaches that the carbon nanotubes are rugged and have higher directionality results in an electron beam having increased focus and accuracy which allows the nanotubes to be spaced further from a storage medium.

Although that a carbon nanotube might not be able to stand a collision, that does not mean that while collision does not take place the above combination would not operate for the intended purpose of recording and/or reproduction. It would have been obvious to one of an ordinary skill in the art to use carbon nanotubes as the electron beam source since in order to provide a higher electron beam directionality that results in an electron beam having increased focus and accuracy, which allows bit size to be reduced, hence by reducing the bit size increases storage density and reduces storage cost.

Contrary to Applicant's assertion, the combination outlined above would be operable and by combining and modifying the teachings of the prior art one of an ordinary skill in the art would have been able to produce the claimed invention.

Furthermore, it is noted that claims 1-3 for example only positively require an array of carbon nanotube heads mounted on a substrate, and one of an ordinary skill in the art would have found obvious to obtain an apparatus having an array of carbon nanotube heads mounted on a substrate, as taught in the combination.

Applicant's alleges that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Applicant is reminded that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is also noted that Applicant's disclosed invention requires such rotational medium with the nanotubes array. And it seems that Applicant's own invention would likely be inoperative, as asserted in the remarks filed on 09/12/2008.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crewe U.S. Patent No. 4,760,567 in view of Nickel U.S. Patent Application Publication 2003/0007443.

Regarding claim 1, Crewe discloses an apparatus, comprising: an array of electron beam tube cathode heads; and a substrate (38) upon which the array heads are mounted.

Crewe discloses and has the desirability of using the electron beam emission cathodes for obtaining a high ultra compact and high density data storage, but does not expressly disclose that are specifically carbon nanotubes.

However, this feature is well known in the art and is evidenced by Nickel, which disclose an apparatus for data storage having and array carbon nanotubes

It would have been obvious to one of an ordinary skill in the art to uses carbon nanotubes as the electron beam source since in order to provide a higher electron beam directionality that results in an electron beam having increased focus and accuracy, which allows bit size to be

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reduced, hence by reducing the bit size increases storage density and reduces storage cost.

Furthermore, the nanotubes also have a lower material transfer and lower transfer rate increases the effective life of the electron sources.

In regard to claim 2, the combination as outlined above shows that the array of carbon nanotube heads includes a set (18; 20) of read/write heads (see Crewe).

In regard to claim 3, the combination as outlined above shows that the array of carbon nanotube heads includes independent controls (21,22,23) for each carbon nanotube head (see Crewe).

In regard to claim 4, claim 4 provides for the use method of the apparatus claimed above, and rejected for the same reasons of obviousness, and further recites a disk having tracks and a step of determining a predetermined track to operate on; and deflecting a beam of a carbon nanotube head of the array of carbon nanotube heads toward the predetermined track; which is met by the references above (refers to Fig. 2, beam 40, track 42).

In regard to claims 5 and 6, the combination as outlined above shows reading/writing data from the predetermined track responsive to the beam impinging on the track (refers to Fig. 2, beam 40, track 42).

Regarding claims 7 and 8, the combination as outline above shows reading/writing data from a second track with a second carbon nanotube head of the array of carbon nanotube heads. (as taught by the combination a second, third, etc heads can be obtained as desired).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JORGE L. ORTIZ CRIADO whose telephone number is (571)272-7624. The examiner can normally be reached on Mon.-Fri 10:00 am- 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea L. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jorge L Ortiz-Criado/
Primary Examiner, Art Unit 2627